D.) AMENDMENTS TO THE DRAWINGS

NONE

E.) REMARKS/ARGUMENTS

This Response is filed in response to an Office Acton dated July 3, 2006.

Upon entry of this response, claims 1-20 will be pending in the Application, claims 1-11 are withdrawn and claims 12-20 stand rejected.

In the outstanding Office Action, the Examiner rejected claims 12-20 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention and rejected claims 17 and 18 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Steibel et al. 6,280,550, and rejected claims 12-20 under 35 U.S.C. 103(a) as being unpatentable over Steibel et al. 6,280,550 in view of Steibel et al. 6,258,737.

Rejection under 35 U.S.C. 112, second paragraph

The Examiner rejected claims 12-20 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 12 and 17, the Examiner found that the phrase "silicon-silicon carbide composite" was present twice in the Markush group. The Applicant has amended claims 12 and 17 to remove the second occurrence of the phrase.

In claim 12, the Examiner found that the phrase "silicon carbide prepreg cloth" raised a question of meaning to the impregnation of the cloth. The Applicant has amended the claim to "silicon carbide prepregged cloth" as recommended by the Examiner and described in the Specification.

In claim 17, the Examiner found the phase "turbine blade forms" unclear. The Applicant has amended the phase to "turbine blade form" which has antecedent basis within the claim.

In claim 17, the Examiner found the phrase "the at least one core insert section" lacked antecedent basis. The Applicant has amended the claim to provide proper antecedent basis for the limitation.

In claim 17, the Examiner found the phrase "the at least one outer shell perform" lacked antecedent basis. The Applicant has amended the claim to provide proper antecedent basis for the limitation.

Applicant submits that no new matter has been added as a result of these amendments to these claims, the amendments either deleting duplicate language, correcting antecedent basis or substituting alternative language as supported by the Specification as originally filed.

Rejections under 35 U.S. C. 102 or, in the alternative, under 35 U.S.C 103

The Examiner has rejected claims 17 and 18 under 35 U.S.C. 102(b) and being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Steibel et al. 6,280,550, hereinafter referred to as "Steibel '550".

Specifically, the Examiner stated that::

"Steibel et al. 6,280,550 discloses a method of making a composite turbine blade comprising: providing first reinforcement comprising an insert preform of silicon carbide fabric rigidized by deposited silicon carbide (silicon carbide-silicon carbide composite preform having porosity); optionally depositing matrix material to fill only a portion of the porosity of the insert preform (silicon-silicon carbide composite preform having some porosity); providing second reinforcement comprising silicon carbide fabric plies preform); applying the silicon carbide fabric plies to contact the insert and define the surface shape of the blade; and depositing matrix material into the porosity of the first and second reinforcement, the depositing also providing bonding between the first and second reinforcements. Matrix material may be deposited by melt infiltration of silicon so that the matrix is silicon carbide or mixture of silicon and silicon carbide. As shown in Figure 7, the insert is provided in the dovetail section of the blade (col. 2-7)."

or in the alternative, that:

"Further, by providing a second reinforcement of silicon carbide fabric plies for defining the surface shape of the blade and into which silicon can be deposited by met infiltration, an outer shell preform having at least some porosity is obviously provided."

Applicant's respectfully traverse the rejection of claims 17 and 18 under 35 U.S.C. 102(b) or in the alternative, under 35 U.S.C. 103(a).

To begin, the Examiner is reminded that "'[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.' *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)." *See* Manual of Patent Examining Procedure, 8th Edition (MPEP), Section 2131.

Steibel '550, as understood, is directed to a method of forming a composite article, such as a turbine blade, formed by preparing a porous first-region piece and then applying at least one second-region layer. Steibel '550 discloses wherein the first-region piece is rigidized prior to applying the at least one second-region layer. Steibel '550 further discloses at Figure 7 wherein said process is used to form a turbine blade.

The Examiner stated "As shown in Figure 7, the insert is provided in the dovetail section of the blade (col. 2-7)". The Applicant disagrees with the Examiner's characterization of Figure 7 of Steibel '550 and the supporting text. In particular, Figure 7 of Steibel '550 is directed to a blade section of a turbine blade. No part of the figure discloses a dovetail section. Additionally, the Applicant finds that the entire disclosure of Steibel '550 is directed to the blade section of the turbine blade and is completely silent as to the dovetail section of the blade. As discussed in Applicant's Specification at [0027], "The turbine blade 20 is mounted to a turbine disk (not shown) by a dovetail 24 that extends downwardly from the airfoil 22 and engages a slot of similar geometry of the turbine disk. Applicant similarly stated at [0040] that "The turbine blade 20 is mounted to a turbine disk (not shown) by a dovetail 24 that extends downwardly from an engages a slot on the turbine disk where it is secured in position." Steibel '550 makes no reference to a dovetail section.

The Examiner has pointed to Steibel '550 as directed to the airfoil or blade section of the turbine blade, and points to no teaching or suggestion that a core insert could be used to form the dovetail section. This is significant in that the airfoil portion of the blade and dovetail portion of the blade are exposed to significantly different operating conditions in terms of stress and environment.

In contrast, independent claim 17 is directed to a method of making a composite turbine blade. Independent claim 17 recites:

"the turbine blade form comprising a dovetail section and an airfoil section, wherein the core insert section is positioned in the dovetail section of the turbine blade form;".

Thus, the Examiner has not shown that Steibel '550 discloses the dovetail section and positioning the core insert in the dovetail section. The Examiner has only shown that Steibel '550 is concerned with the airfoil section of the turbine blade and makes no disclosure in regard to the dovetail section of the turbine blade form. Applicant's invention has claimed a method which includes positioning a core insert into the dovetail section. As the Examiner has not shown that Steibel '550 teaches or suggests this limitation of independent claim 17, Applicant's respectfully submit that Steibel '550 does not anticipate Applicant's invention as recited in independent claim 17.

In the alternative, the Examiner further states:

"Further, by providing a second reinforcement of silicon carbide fabric plies for defining the surface shape of the blade and into which silicon can be deposited by met infiltration, an outer shell perform having at least some porosity is obviously provided."

The Applicant further asserts that the finding in the alternative under 35 U.S.C. 103(a) lacks merit for the same reasons as argued against the rejection based on anticipation.

The following principle of law applies to all Section 103 rejections. MPEP 2143.03 provides "To establish prima facie obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)." [emphasis added] That is, to have any expectation of rejecting the claims over a single reference or a combination of references, each limitation must be taught somewhere in the applied prior art. If limitations are not found in any of the applied prior art, the rejection cannot stand. In this case, the applied prior art reference, applied individually, clearly do not arguably teach some limitations of the claims.

Independent claim 17 recites:

"the turbine blade form comprising a dovetail section and an airfoil section, wherein the core insert section is positioned in the dovetail section of the turbine blade form;".

The Examiner has not pointed to a teaching that Steibel '550 discloses the dovetail section and positioning the core insert in the dovetail section. The Examiner has only pointed to Steibel '550 being concerned with the airfoil section of the turbine blade and makes no disclosure in regard to the dovetail section of the turbine blade form. As the Examiner has not shown that Steibel '550 teaches or suggests the limitations of independent claim 17, Applicant's respectfully submit that Steibel '550 does not render obvious Applicant's invention as recited in independent claim 17.

Therefore, for the reasons given above, independent claim 17 is believed to be distinguishable from Steibel '550, and therefore, is not anticipated, nor rendered obvious by Steibel '550. In addition, dependent claim 18 is believed to be allowable as depending from what is believed to be allowable independent claim 17 for the reasons given above.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Rejections under 35 U.S.C 103

The Examiner has rejected claims 12-20 under 35 U.S.C. 103(a) as obvious over Steibel et al. 6,280,550, hereinafter referred to as "Steibel '550" in view of Steibel et al. 6,258,737, hereinafter referred to as "Steibel '737"

Specifically, the Examiner stated that:

"Steibel et al. 6,280,550 discloses a method of making a composite turbine blade comprising: providing first reinforcement comprising an insert preform of silicon carbide fabric rigidized by deposited silicon carbide (silicon carbide-silicon carbide composite preform having porosity); optionally depositing matrix material to fill only a portion of the porosity of the insert preform (silicon-silicon carbide composite preform having some porosity); providing second reinforcement comprising silicon carbide fabric plies (preform); applying the silicon carbide fabric plies to contact the insert preform and define the surface shape of the blade; and depositing matrix material into the porosity of the first and second reinforcement, the depositing also providing bonding between the first and second reinforcements. Matrix material may be deposited by melt infiltration of silicon so that the matrix is silicon carbide or mixture of silicon and silicon carbide. As shown in Figure 7, the insert is provided in the dovetail section of the blade (col. 2-7). Steibel et al. do not specifically disclose providing the second reinforcement as plies of silicon carbide prepreg cloth."

The Examiner added a secondary reference, further stating:

"Steibel et al. '737 teaches that in making a silicon carbide composite by melt infiltration with silicon, the silicon carbide fiber fabric is impregnated with high char yield slurry to form a prepreg before melt infiltration. The use of a high char yielding resin improves increases burn-out strength, produces a hard, tough preform and provides integrity to the preform structure during silicon melt infiltration. Steibel et al. further teach that before melt infiltration, the impregnated fabric (prepregged cloth) is either subjected to compression molding, bladder molding or autoclaving to form a preform for melt infiltration. Steibel et al. also teach that carbon of micrometer particle size provided in silicon carbide preforms to give different composite properties of structure (col. 5, line 50 - col. 6, line 11, col. 6, line 64 - col. 7, line 12)."

Applicants respectfully traverse the rejection of claims 12-20 under 35 U.S.C. § 103(a).

The following principle of law applies to all Section 103 rejections. MPEP 2143.03 provides "To establish prima facie obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)." [emphasis added] That is, to have any expectation of rejecting the claims over a single reference or a combination of references, each limitation must be taught somewhere

in the applied prior art. If limitations are not found in any of the applied prior art, the rejection cannot stand. In this case, the applied prior art reference, applied individually, clearly do not arguably teach some limitations of the claims.

Amended independent claim 12 recites:

> "assembling the core insert section and the outer shell section into a turbine blade form, the turbine blade form comprising a dovetail section and an airfoil section, wherein the core insert section is positioned in the dovetail section of the turbine blade form;"

and amended independent claim 17 recites:

"assembling the core insert section and the outer shell preform into a turbine blade form, the turbine blade form comprising a dovetail section and an airfoil section, wherein the core insert section is positioned in the dovetail section of the turbine blade form;"

The Examiner has not shown that Steibel '550 teaches, as discussed in detail above in the traversal of the rejection of claim 17 under 35 U.S.C. 102/103, positioning a core insert section into the dovetail section. Figure 7 of Steibel '550 provides no disclosure as to a dovetail section and is only concerned with the blade section of a turbine blade. Furthermore, this defect is not cured by the secondary reference to Steibel '737.

Steibel '737 is directed to a method of forming a silicon carbide-containing perform. The Examiner has not shown that Steibel '737 provides a teaching or suggestion to position a core insert section in the dovetail section of a turbine blade. Furthermore, the Examiner has not shown that Steibel '737 provides any disclosure concerning the dovetail section in general. The explanation of the rejection fails to address this limitation in the claims.

Therefore, for the reasons given above, independent claims 12 and 17 are believed to be distinguishable from Stiebel '550 and, therefore, not anticipated, nor rendered obvious by Steibel '550. Furthermore, the defect of Stiebel '550, in not disclosing the positioning of the at least one core insert section into the dovetail section, is not cured by Steibel '737. Furthermore, the Examiner has not shown that Steibel '737 provides a teaching as to

positioning at least one core insert section into the dovetail section in order to cure this lack of teaching in the primary reference. In addition, dependent claims 13-16 and 18-20 are believed to be allowable as depending from what is believed to be allowable dependent claims 12 and 17 for the reasons given above.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

CONCLUSION

In view of the above, Applicants respectfully request reconsideration of the Application and withdrawal of the outstanding rejections. As a result of the amendments and remarks presented herein, Applicants respectfully submit that claims 17 and 18 are not anticipated, or rendered obvious, by Stiebel '550, and thus are in condition for allowance. In addition, Applicants respectfully submit that claims 12-20 are not rendered obvious by Steibel '550 in view of Steibel '737. In addition, Applicants respectfully request reconsideration and withdraw of the rejection of claims 12-20 under 35 U.S.C. 112, second paragraph, as Applicant has amended the claims to provide proper antecedent basis. As the claims are not anticipated or rendered obvious by the applied art, Applicants request allowance of claims 12-20 in a timely manner. Applicants submit that no new matter has been added by the amendments to the claims. If the Examiner believes that prosecution of this Application could be expedited by a telephone conference, the Examiner is encouraged to contact the Applicants.

The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to Deposit Account No. 50-1059.

Respectfully submitted,

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